



Windmills

No less than 8 windmills are located in the Rijnwoude area. These include:

"Nieuw Leven", "De Rietveldse molen",

"De Rooie Wip" and "De Blauwe Wip" in Hazerswoude-Dorp;

"De Groenendijkse molen" in Groenendijk,

"De Hondsdijkse molen" in Koudekerk;

"De Rhynenburchermolen" in Hazerswoude-Rijndijk;

"De Haas" in Benthuizen.

The windmill "De Rooie Wip" is only a short walk away from the AVG demo projects. This windmill is open to demo visitors during lunchtime. The volunteer windmill operator will make sure that the windmill will be operating at that time.

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CODE OF CONDUCT

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During **Demo '98** you are kindly requested:

- not to smoke in the tents
- not to use mobile phones
- to lend your co-operation if requested by the organisation

We thank you for your support.

Introduction

Mobility in the Netherlands is under considerable and constant pressure. Our roads are becoming increasingly congested. Finding adequate solutions to this problem is one of the greatest challenges facing us. In order to discover and exploit these solutions the Ministry of Transport, Public Works and Water Management is facilitating the development of practical innovations and alternatives.

One of the options is Automated Vehicle Guidance (AVG), a theme within the scope of the Ministry's 'Roads to the Future' innovation program. Automated Vehicle Guidance is a collective name for systems that automate the driver's tasks either in full or in part. AVG's present capabilities and future (international)

development will be demonstrated in the Netherlands during Demo '98, to be held 15-19 June 1998.

The AVG demonstration is one of the activities in jubilee program 200 years of the Directorate-General for Public Works and Water Management.

The Directorate-General of Public Works and Water Management, South Holland, official host of Demo '98, is constructing a new motorway in the municipality of Rijnwoude, the N11. I am pleased to open this motorway (which is not yet officially open) for such a unique, international event as Demo '98.

I would like to wish all those who will be giving a demonstration and the fair participants a successful and enlightening demo week and at the same time, extend a warm welcome to all the visitors - both experts and non-experts. I hope the event will prove to be both educational and inspiring for you all.

H.M. Schroten

Chief Engineer-Director of the DG of Public Works and Water Management, Directorate South Holland



Discover automated vehicle guidance yourself

Demo '98

From Monday 15 through Friday 19 June 1998, the Ministry of Transport, Public Works and Water Management is organising Demo '98, an international demonstration of systems in the area of automated vehicle guidance (AVG). AVG is the collective name for systems that support or take over drivers' driving tasks. As a pilot project, AVG is part of the innovation program Roads to the Future of the Ministry of Transport, Public Works and Water Management (you can read more about Roads to the Future on page 4).

During Demo '98, manufacturers, research institutes and ministries of Traffic and Transportation from the United States, Japan and Europe will

present the AVG applications that are being developed at this time. This will be the first time that these systems will be seen in Europe. The entire week, some fifteen different applications will be demonstrated on the N11 motorway under construction between Leiden and Alphen aan de Rijn (near the municipality of Rijnwoude). The systems, which are suitable for passenger transportation, transport of goods and public transport, can wholly or partly take over (i.e. automate) certain driving tasks of the driver. Examples are:

- in the short term: maintain by automation a constant distance from the vehicle ahead (Intelligent Cruise Control) and
- in the long term: driving in platoon

formations (platooning), with the speed, inter-distance and routes of several vehicles regulated automatically.

Goals

The Ministry of Transport, Public Works and Water Management regards AVG as one of the options for enhancing traffic safety in the future and reducing mobility problems. This is why the Ministry wants to use Demo '98 to demonstrate the current state of affairs in the AVG research area to policy makers, politicians, sectors of industry, special interest groups and car drivers. The exchange of knowledge between market parties and the forming of joint ventures are the primary goals.



Discover for yourself

I would like to thank all the organisations that are providing a demonstration or in some other way have made Demo '98



possible. I especially want to thank the EU for its support. An international event of this scope and uniqueness can only be successful on the basis of (international) co-operation.

Also on behalf of co-organiser TNO, I trust all the visitors will enjoy themselves very much in discovering for

themselves the pros and cons of automated vehicle guidance, while at the same time forming their own opinion about systems that will influence our driving behaviour in the future. Demo '98 will offer every opportunity in this regard during the arena discussions, at the AVG exposition, at the information fair, but, most of all, of course, during the demonstrations. When it is over, we will be interested in hearing your opinion. Please do not hesitate to let us know what you think.

J.J. Soeteman

Project Manager Demo '98, DG of Public Works and Water Management, Transport Research Centre

Roads to the Future On the road to more innovative use of the existing infrastructure

Roads to the Future is an initiative of the Ministry of Transport, Public Works and Water Management. The objective is to explore and develop new innovations, focused on better and more clever use of the existing main road grid in the long term. Roads to the Future offers futuristic images and perspectives and shows concrete alternatives in the form of demonstrations and pilot programs as the first step to the envisioned improvements.

Four specialist divisions and the headquarters of the Directorate-General of Public Works and Water Management are working together on Roads to the Future. They take their inspiration from discussions with road users, external experts and special interest organisations.

Roads to the Future exhibition

On the way to the Information Fair, you will pass the Roads to the Future exhibition billboards. This exposition includes an overview of the history of the Ministry's innovative program.

AV-presentation: Imagination

The presentation Imagination, which focuses on the innovation program Roads to the Future will be presented in the AVG exposition hall daily. Three individuals will discuss the various future methods for regulating traffic on main motorways in the Netherlands. Viewers can give their opinion of these various visions of the future using an electronic voting system.

Welcome to Rijnwoude

The municipality of Rijnwoude was created 1 January 1991 through a merger of the municipalities of Benthuizen, Hazerswoude and Koudekerk aan den Rijn. The municipality has 19,500 inhabitants and covers 5800 hectares. Rijnwoude is a so-called "Green Heart" municipality.

Tree cultivation, (peat) meadows and farming activities form the green part of the municipality. The International Trade Centre (ITC) for tree cultivation is located in Hazerswoude-Dorp and houses companies involved in tree cultivation. The "Plantarium", a building for shows and other activities related to the tree cultivation sector, is located at this site.

The municipal board of Rijnwoude is proud to host the AVG demonstrations

and wishes you an enjoyable and educational stay in every respect. Perhaps we will also see each other at our stand on the fair.

M.J.J.M Boelen

Mayor of Rijnwoude



Thank you Heineken and Combi-Road!

The refreshments on Monday 15 June will be provided by



who is also providing the outdoor seating accomodation.

The refreshments on Thursday 18 June will be provided by

Combi-Road

Demo '98

Demo '98: which demonstrations will be held and where? A six kilometre stretch of the N11, a national trunkroad under construction, has been specially set-up for Demo '98. Demonstrations of AVG vehicles will be held on and around this road, spread across eight locations. This and subsequent pages provide a concise description of the various demo sites and the demonstrations you can expect to observe there.

Daily Programme

Please note: changes to the demo programme may occur due to unforeseen circumstances. Consult the daily programme for a complete and up to date overview of the demonstrations, including the times at which they will be held.

The daily programme is available at various locations on the demo site, including the information desk in the main tent.

Main Demos

The Main Demo site is the six kilometre stretch of the N11 where high-speed demonstrations in particular will be held. Markers have been fitted in the road surface which will be used by a number of AVG vehicles in order to maintain their course. The Main Demo site is divided into four parts: Main Demo A, Main Demo B, B-North and Main Demo C.

Main Demo A

This is the most westerly part of the N11. The tent located on the northern side of

the road (called Off the Road Demo View) provides access to the demonstrations at Main Demo A.

The Off the Road Demos which will be held north of the N11 (see Off the Road Demo) can also be viewed from this tent.

The following demonstrations are planned for Main Demo A:

- Fiat Lateral Manoeuvring
- TNO-ICACAD
- SAVE
- ECT AGV Train
- Safe Trail from the Delft Technical University

Main Demo B and B-North

Main Demo B involves the centre stretch of the N11. The northern lane is B-North

and will be used by the French research institute INRIA to demonstrate the 'Cycab' and by Dassault to demonstrate an electric car: I-SAVE.

The following demonstrations will be held on the southern lane:

- CHAUFFEUR
- Urban Drive Control
- ECT AGV Train
- Safe Trail from the Delft Technical University
- PATH

From the Main Demo Boarding tent, located on the northern side, you can view the demonstrations being held at Main Demo B, and you can board and take part in the demonstrations yourself. For demonstrations at B-North you can board at the Off the Road View tent.

Main Demo C

Main Demo C involves the eastern stretch of the N11. Here the following demonstrations will take place:

- Intelligent Speed Adaptation (ISA)
- Urban Drive Control
- PATH

Main Demo C has its own boarding tent, known as the Eastern Boarding tent.

Mini Demos

The Mini Demo Track, measuring four hundred metres, is located on the northern side of the N11. Demonstrations to be held there include the following:

- PATH
- Daimler Benz
- TNO-ICACAD
- INRIA Test #1

Slow Demos

The Slow Demo Track has been set-up south-east of the main tent. This is a lane measuring approximately 400 metres. This site has been set up for demonstrations involving the ParkShuttle, a low-speed people-mover. Another Slow Demo Track has been reserved for Gottwald. This track is located east of the Mini Demo Track.



Off the Road Demos

The Off the Road Demos will be held on the northern side of the N11, east of the fly-over. Demonstrations with the Mooncat will be held here and demonstrations will be given by Dassault (DARDS). The Off the Road Demos involve vehicles which do not require asphalt road surfaces (such as military autonomous vehicles).

Visitors will not be able to participate in the Off the Road Demos. The demonstrations can be viewed from

The demonstrations can be viewed from the Off the Road Demo View tent, located between the N11 and the Off the Road area. This tent will also be used as the boarding site for the demos to be held at Main Demo A and B-North.



Mixed Demos

During these demonstrations, AVG vehicles will drive in real traffic conditions. The starting point for these vehicles driving in ordinary traffic is the main entrance. This is also the location for boarding.

Demonstrations to be held here include the following:

ADC (Automotive Distance Control Systems GmbH) Dassault (AWAY-demo: ACC-radar) TNO-ICACAD.

How can you participate in a demonstration?

Look in the demo schedule for which demo you wish to attend and at what time Look at the map on the inside of the back cover for the location of the Boardings

At the Boarding locations, you will receive a stamp and time sticker for the demonstration(s) you wish to attend Make sure you arrive at least 5 minutes early at the relevant Boarding location. Enjoy your ride!

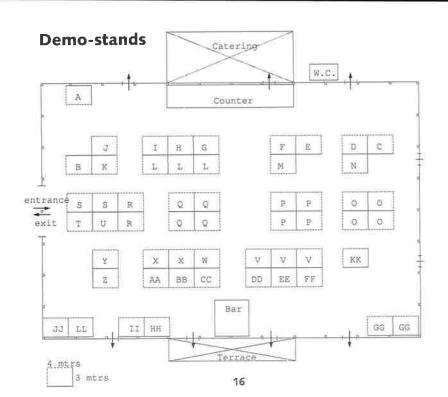
The number of tickets per demonstration is limited. Twenty-percent of the available seats will be reserved for late comers up to two hours before the start of a demonstration. If all the seats have been

allocated, please remain at the Boarding location. We cannot guarantee you a seat, but you may still be able to participate (for example, if someone arrives late, does not show up or if the rides go faster than anticipated).

Conditions:

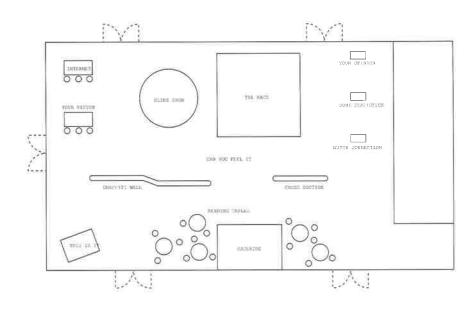
- participation is at your own risk
- the organisation shall in no way be liable for any damage
- the instructions of the organisers must be followed to the letter and without delay
- if you arrive late, you may forfeit your right to participate
- the organisers reserve the right to change driving schedules at any time, if necessary without giving reasons.

Stamp	Location	Time
PARK		11.40
	<u> </u>	



Stand	Organization	Stand	Organization
F	AC Assist	J	Motiv (Automotive Directorate)
D	ADC GmbH	N	Navigation Technologies
Р	AHSRA	KK	Organizing Committee, 5th ITS
CC	ANT		World Congress
HH	Buiscar Constructie- en	U	PATH
	Transportwagenfabriek B.V.	GG	RDW Centrum voor voertuig
Υ	Centrum Transport Technologie (CTT)		techniek en informatie
Q	Chauffeur	S	Route Automatisée/INRIA
L	Combi-Road	R	RUF International
W	Daimler-Benz AG	DD	Teerbau GmbH
Μ	Dassault Electronique	Е	Tele Atlas
LL	ECT	V	TNO Verkeer en Vervoer
X	European Commission	В	Traffic Technology International
K	Foresight Vehicle	G	TRD Athens Branch/SAVE
	(Atkins Wooton Jeffreys)	II	TU Delft/TRAIL
Z	FROG Navigation Systems	AA	Universiteit van Amsterdam
EE	Gemeente Rijnwoude	Т	University of Minnesota
Α	Intelligent Transportion Society of America	1	University di Parma
FF	ISA	Н	Urban Drive Control
0	KLPD	С	Volkswagen AG
JJ	Mannesmann Dematie AG Gottwald	BB	ZWN

AVG-EXPOSITION



AVG is a subject which evokes rather divergent opinions. The AVG exposition will feed the diversity of views in a creative manner and will elicit outspoken opinions.

The AVG exposition will be a "fun and educational" experience that you mustn't miss!

The AVG exposition will be located in the large tent in the centre of the Demo '98 area. You will find the following exhibits there:

Some Statistics

What is the current state of affairs on Dutch roads? How many traffic jams nowadays, how many accidents, and what are the consequences of the Dutch traffic situation for the economy

and the environment, Some Statistics gives you the hard facts.

Cross Section

What are the consequences of AVG applications in your own car? Where are the technologies located that ensure that you keep driving in the same lane, that the car detects, and reacts to, obstacles on the road or that the car can parallel park automatically? Find out where the technologies in the car go and read about it in the Cross Section.

Slide show

See the advantages of AVG all lined up in a row. With the use of clearly formulated statements and beautifully designed matching photo material, the Slide show features it all.

Your Opinion, Please

Automated Vehicle Guidance is a possible solution to the mobility problem. It can make a positive contribution to safety on the roads and the environment. AVG technologies also increase car driving comfort. But what is your opinion about it now? Do you believe in AVG? Is AVG truly a realistic prospect? And where do you see AVG first being implemented? Take ten minutes for Your Opinion, Please, and let us know what you think about AVG.

Can you feel it

In addition to technical perfection, social acceptance is a condition for implementation of AVG technologies. After all, with AVG, the person in the vehicle increasingly leaves the driving to

technology. How does that feel? In Can You Feel It, you can experience what AVG is all about in a rather playful way.

Dutch Connection

The Netherlands plays an active part in Automated Vehicle Guidance developments. The Ministry of Transport, Public Works and Water Management supports various research projects in the Netherlands and abroad.

In addition to research, however, AVG is being concretely applied in various areas. Consult the Dutch Connection to "hear" which developments are going on in the Netherlands in the area of AVG.

Graffiti Wall

The forces between the group and the individual are brought into play with

AVG. You drive in your own car, but your driving behaviour can be subordinated to the group traffic flow. You are autonomous, but at the same time, you are not.

You have a fast sports car, but your driving behaviour is influenced externally. You can express your feelings about this on the Graffiti Wall and read what other people think.

The Internet

Information about Automated Vehicle Guidance is extensively reproduced on the Internet site of the Dutch Ministry of Transport, Public Works and Water Management, at the address: www.minvenw.nl/rws/wnt/avg. At the exposition, you can consult the AVG site.

Your Vision

A fun quiz on Automated Vehicle Guidance and everything that goes along with it. Just some questions in between. You can get working on them in Your Vision.

The Reading Table

A reading corner where you can quietly digest all your impressions. Here, you can consult literature about Automated Vehicle Guidance and other relevant information. The Reading Table itself includes various statements which - positively or negatively, for or against, acceptable or not - will get you thinking.

Arena discussions

'Arena discussions' will be held each day at the demo site. The goal of these discussions is to address discussion points for different target groups, both experts and non-experts. Each discussion will be based on a number of thought-provoking statements regarding Automated Vehicle Guidance. Experts invited from different professional backgrounds will present their positions at the start of the discussion. Next, both the experts and the audience can discuss the various positions, with the aim of identifying issues upon which agreement can be reached and those on which opinions differ. The audience is invited by moderator Ben Immers (Leuven Catholic University and TNO senior project manager) to take part in the discussion and can express their views using an voting system.

Short and medium-term applications of Automated Vehicle Guidance (16 June)

Theme

The development of Automated Vehicle Guidance is driven by a combination of forces exerted by industries, governments and users. The session consists of two parts. The first part of the session will focus on a classification of Automated Vehicle Guidance systems and the responsibilities of the parties. The second part of the session will be devoted to the presentation of two typical cases illustrating these various aspects and stakeholder roles regarding Automated Vehicle Guidance, focusing on Intelligent Speed Management and Adaptive Cruise Control.

Speakers

Otto Hoffmann (TüV Rheinland Kraftfahrt GmbH, Germany), Jan Busstra (Ministry of Transport, Public Works and Water Management, the Netherlands), Masayoshi Ito (Mitsubishi Motors Corporation, Japan)

Research and development of Automated Vehicle Guidance (17 June)

Theme

R&D of Automated Vehicle Guidance can be divided into three main areas, each of which should incorporate which insights have emerged in the other two: technology, human factors and the transportation system.

Speakers

Dr. Gunther Reichart (BMW AG, Germany), Dr. Sadayuki Tsugawa (Mechanical Engineering Laboratory, MITI, Japan), Dr. Steven Shladover (California PATH, USA), Prof. Dr. Hans Godthelp (TNO Human Factors Research Institute, the Netherlands), Dr. Oliver Carsten (ITS, University of Leeds, United Kingdom).

International dimension of Automated Vehicle Guidance (18 June)

Theme

This session will be devoted to international aspects of in Automated Vehicle Guidance. The sessions consists of two

blocks. The first block will be devoted to issues with an international aspect, such as benefits, deployment, standardisation, acceptance and liability. The second block will give an overview how these issues are addressed in different parts of the world.

Speakers

Deployment and international benefits (Job Klijnhout, Directorate-General Public Works and Water Management, the Netherlands), R&D and standardisation (Martin Rowell, Navtech), Acceptance and liability (Scott Andrews, Toyota Motor Corporation, Japan), IVI systems in the USA (Dick Bishop, ITS America), Japanese status (Akio Hosaka, AHSRA, Japan), European status (Eduardo Barreto, EU Commission DG XIII).

Special workshops

The following AVG-related workshops are being organised for Demo '98 (in principle, only for invitees):

- ADASE/AHSEA, Monday 15 June
- Vehicle Intelligence, Tuesday 16 June
- Business Plan AVG, Wednesday 17 June
- Automatic Goods Transport (ART, Combi-Road), Thursday 18 June
- IAHS Task force, Thursday 18 and Friday 19 June

Workshop Vehicle Intelligence

Advances in technology and the accompanying reduction in costs are leading to the introduction of a diverse range of on-board vehicle facilities.

These facilities, which are referred to as "vehicle intelligence", improve a vehicle's reliability, comfort and safety, and can also contribute to improvements in, for example, the economy and accessibility. The need for vehicle intelligence comes partly and independently from (road) users, and partly from governmentimposed objectives with respect to traffic and transport.

It is therefore in the government's interest that optimal use be made of vehicle intelligence, and that both the opportunities and threats be taken into account. In this workshop, policy makers, industry representatives, and other parties concerned will identify and discuss possible public policy issues concerning vehicle intelligence.

Workshop Co-operating in Automated Vehicle Guidance kick-off for a business plan

The report Co-operating in Automated Vehicle Guidance- kick-off for a business plan, an initiative of the Ministry of Public Works and Water Management, in co-operation with TNO, TRAIL, RuG COV and the SWOV was published in February 1998, based in part on input from the numerous participants. On the basis of this report, a follow-up project was explored, among other things focusing on the policymaking process. The current status will be presented during the workshop. A discussion will also be held on the role of AVG for the government, the business community and the public.

Workshop: Opting for Intelligent Transport of Goods

What knowledge do we need to develop now, so that the mobility problem in 2030 can be solved? That is the central question of the workshop on automated transport of goods. In addition to other automated vehicle technologies, Automatic Road Train and Combi-Road occupy centre stage in this workshop. Participants and speakers from the business world, various knowledge centres and the government will discuss:

- the possibilities for realisation and the position of different technologies within future traffic systems and
- the possibilities for applying these technologies and embedding them in society.

Combi-Road

There will be an opportunity from Tuesday through Thursday to make a trip to Ridderkerk, where Combi-Road (automated container transport) will be demonstrated.



Introduction ECT

Sustainable mobility through innovative transport technology

Today's terminal transport... Tomorrow's freight transport?

The tendency towards the development of economies-of-scale has been noticed already by the Port of Rotterdam and ECT in the beginning of the eighties. In that period, the expectations of large-scale developments gave ECT the impetus to invest in an innovative container handling concept, based on the premise that the port of Rotterdam was rapidly evolving into a 'container mainport'. ECT was fortunate to dispose of a vast and completely new terrain, completely reclaimed from the sea: the Maasvlakte.

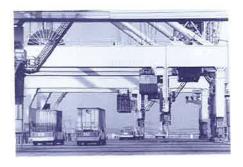
Here, there was enough space to invent and realise new handling concepts, based on advanced technology such as the use of multi trailer systems and the introduction of IT-innovations, such as Computer-Aided Shipplanning and EDI. Rotterdam has an enormous hinterland, which can be reached by means of four transport modalities: short sea, road, rail and inland shipping.

As far as the largest modality, road transport, is concerned, numerous improvements were developed regarding the landside handling. It soon became clear that more innovative container handling concepts were needed to cope with the growth. It was quite clear to ECT that the future would have to built on a high level of automation. ECT was convinced that most other European countries -

and indeed, many non-European countries as well - (for instance, in the Far East), would sooner or later be facing more or less similar economic and social circumstances.

At the end of the eighties, when ECT needed to extend the terminal capacity, the company also was able to realise a complete new vision of container handling at the Maasvlakte.

At the Delta/Sea-Land Terminal, opened in 1993, robotized trucks and robotized cranes were introduced. Here, the transport of containers between the quayside cranes and the temporary storage area on the terminal, commonly known as the stack, was effected using AGVs (Automated Guided Vehicles). Containers are positioned within the stack using ACSs (Automated Stacking Cranes).



The loading and unloading of ships is done by manned cranes, Similarly, for the loading and unloading of trucks, ECT uses manned equipment.

The Delta/Sea-Land Terminal has turned out to be very successful. The technology is fast, reliable and very cost-effective. No wonder that, for the further development of the Maasvlakte peninsula, the

Port of Rotterdam and ECT joined forces and decided to build new terminals using the same philosophy, based on a high level of automation. In july 1996, ECT opened the Delta Dedicated East Terminal, using the same technology. Slight modifications and improvements were added, making use of the developments in the field of information technology.

Advantages of robot technology

- Advantage # 1: improved quality of service. ECT's operation has become more predictable, with less damage, less operational mistakes and better possibilities to cope with peak levels.
- Advantage # 2: ECT has better financial results. Although a robotized terminal requires higher investments and a longer period of preparation, as

from day one, the robotized terminal showed better financial results than ECT's conventional terminals. The most important reason for this is that ECT needs less operational personnel.

- Advantage # 3: ECT's position towards European competitors has been improved.
- Advantage # 4: ECT has changed from a conventional terminal into a contemporary, flexible organisation that is able to quickly adapt to future IT-developments as well as market demands.

ECT is convinced that, in the long run, terminal automation will reach an even higher level and - perhaps even more important - a range of new and broader applications. Undeniably, container transport has led to an intensive use of

public infrastructure in and around the port. Although ECT supports numerous initiatives in the field of modal shift, road transport will remain an important factor. In this respect, ECT innovations can contribute to lower the pressure and to reduce environmental drawbacks The Rijnwoude demo proves that terminal transport, in this case a combination of AGVs and Multi Trailer chassis, can move large quantities of containers on public roads, using existing infrastructure. A possible solution for the port might be to equip special highway lanes in the port area, (e.g. between the Maasvlakte and a village outside the port) with transponders. Large quantities of containers could be thus transported environmentally sound and reducing traffic congestions. The challenge for all concerned is to



develop sustainable mobility, preferably based on proven technology and making optimal use of existing infrastructure. The ECT demo indicates that container terminal transport might well be tomorrow's freight transport,

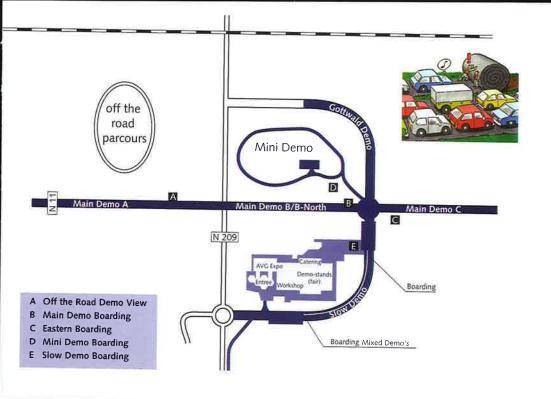
Rob Vissers ECT Corporate Communication You have visited Demo '98. What did you think of it? In your opinion, what are the advantages and disadvantages of automated vehicle guidance?

Write down your opinion on this form and leave it at the information desk or send it to: RWS/AVV, Antwoordnr. 5559, 3000 VB Rotterdam.

Commissioned by the Ministry of Transport, Public Works and Water Management,
Directorate-General of Public Works and Water Management,
Transport and Research Centre,
Bureau DST is proud to have been responsible for the organisation,
communications and exhibitions at Demo '98.



We would like to thank the AVG project team for the inspiring co-operation.





Ministry of Transport, Public Works and Water Management



Roads to the Future Automated Vehicle Guidance is a pilot project within the 'Roads to the Future' innovation programme of the Ministry of Transport, Public Works and Water Management.







Colophon

This booklet was published through the contribution of:





If you have any questions after visiting **Demo '98** regarding automated vehicle guidance, please contact:

- RWS/AVV Demo '98, Antwoordnummer 5559, 3000 VB Rotterdam, The Netherlands
- TNO Traffic and Transport, Sacha Boedijn, telephone 015-269 67 53.